

Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1. Canceled.

2. (Currently Amended) A method ~~according to claim 1, for~~
transmitting a data stream that exhibits self-similarity through a digital communication
network, the method comprising the steps of:

(a) receiving a plurality of blocks in the data stream, each block including a
plurality of data values;

(b) reordering the blocks according to a predetermined deterministic scheme
to reduce the self-similarity of the data stream, wherein the predetermined deterministic
scheme reorders a predetermined number of blocks, N_{MB} corresponding to a macro-block, the
predetermined number being defined as $N_{MB} = S(R+1)$ where S is an integer skip number
defining a number of input blocks that are skipped between successive blocks of the reordered
data starting from block D in the macro-block and R is an integer restart number defining a
number of skip operations to be performed before restarting the skip operations from block $D+1$
in the macro-block, where D is an integer;

(c) transmitting the reordered blocks through the digital communications
network to a receiving node; and

(d) reordering the blocks again, at the receiving node, to reverse the
predetermined deterministic scheme and regenerate the data stream.

3. (Original) A method according to claim 2, wherein S is equal to R .

4. (Original) A method according to claim 2, wherein S and R are greater
than 32.

5. (Original) A method according to claim 2, wherein:

the data stream is an variable bit rate (VBR) video stream including a plurality of picture records;

step (b) includes the steps of:

identifying the picture records in the VBR video stream; and

reordering the picture records according to the predetermined deterministic scheme; and

step (d) includes the steps of

identifying the picture records in the reordered VBR video stream; and

reordering the picture records again to reverse the predetermined deterministic scheme and regenerate the VBR video stream.

6. (Currently Amended) A method ~~according to claim 1, for transmitting a data stream that exhibits self-similarity through a digital communication network, the method comprising the steps of:~~

(a) receiving a plurality of blocks in the data stream, wherein the blocks of data are grouped in macro-blocks and the predetermined deterministic scheme is applied to all of the blocks in each macro-block individually, each block including a plurality of data values;

(b) reordering the blocks in each macro-block, individually, according to a predetermined deterministic scheme to reduce the self-similarity of the data stream;

(c) transmitting the reordered blocks through the digital communications network to a receiving node; and

(d) reordering the blocks again, at the receiving node, to reverse the predetermined deterministic scheme and regenerate the data stream..

7. (Original) A method according to claim 6, further including the step of reordering the macro-blocks prior to applying the predetermined deterministic scheme to a

macro-block and wherein the step of reordering the blocks at the receiving node further includes the step of reordering the macro-blocks.

8. Canceled.

9. (Currently Amended) A data transmission interface for a digital communications network which transmits data from an input node to an output node, a portion of the data exhibiting self-similarity, comprising:

means for receiving blocks of data to be transmitted through the network, each block including a plurality of data values;

a shuffling buffer which reorders blocks of the received data according to a predetermined deterministic scheme reduce the self-similarity of the data and to provide the reordered blocks of data to the input node of the network; and

a reconstruction buffer, coupled to receive the reordered data from the output node of the digital communications network, the reconstruction buffer reordering the data to reverse the predetermined deterministic scheme and reconstruct the received data;

according to claim 8, wherein:

the shuffling buffer includes:

a skip register which holds an integer skip value, S_i ; and

a restart register which holds an integer restart value, R_i ; and

wherein the predetermined deterministic scheme reorders a predetermined number of blocks, N_{MB} corresponding to a macro-block, the predetermined number being defined as $N_{MB} = S (R+1)$ where S is an integer skip number defining a number of input blocks that are skipped between successive blocks of the reordered data starting from block D in the macro-block and R is an integer restart number defining a number of skip operations to be performed before restarting the skip operations from block $D+1$ in the macro-block, where D is an integer.

10. (Currently Amended) A data transmission interface for a digital communications network which transmits data from an input node to an output node, a portion of the data exhibiting self-similarity, comprising:

means for receiving blocks of data to be transmitted through the network, each block including a plurality of data values;

a shuffling buffer which reorders blocks of the received data according to a predetermined deterministic scheme reduce the self-similarity of the data and to provide the reordered blocks of data to the input node of the network;

a reconstruction buffer, coupled to receive the reordered data from the output node of the digital communications network, the reconstruction buffer reordering the data to reverse the predetermined deterministic scheme and reconstruct the received data; and

~~The digital communications network of claim 8, further comprising a plurality of transmission nodes in the data communications network, each transmission node having a queuing buffer, wherein each queuing buffer has a predetermined memory size sufficient only to queue data that does not exhibit self-similarity through the network.~~

11. (Currently Amended) A data transmission interface method which configures data exhibiting self-similarity for transmission through a digital communications network from an input node to an output node of the network, the method comprising the steps of:

receiving blocks of data to be transmitted through the network, each block including a plurality of data values;

reordering the received blocks data according to a predetermined deterministic scheme reduce the self-similarity of the data, wherein the blocks of data are grouped in macro-blocks and the predetermined deterministic scheme is applied to all of the blocks in each macro-block individually;

providing the reordered blocks of data to the input node of the network; and

retrieving the reordered blocks of data from the output node of the network; and

reordering the data to reverse the predetermined deterministic scheme and reconstruct the received data.

12. Canceled.

13. (Currently Amended) A computer readable carrier including computer program instructions adapted to instruct a general purpose computer to implement a method that substantially reduces self-similarity of data using a scheduling method, the method comprising the steps of:

(a) receiving a plurality of blocks of data grouped in macro-blocks, each block having a predetermined block size; and

(b) reordering the blocks of data in each individual macro-block according to a predetermined deterministic scheme to substantially reduce the self-similarity of the blocks of data.

14. Canceled.

15. (Newly Added) A method according to claim 11, further including the step of reordering the macro-blocks prior to applying the predetermined deterministic scheme to each macro-block and wherein the step of reordering the blocks to reverse the predetermined deterministic scheme further includes the step of reordering the macro-blocks.

16. (Newly Added) A method according to claim 13, further including the step of reordering the macro-blocks according to the predetermined deterministic scheme prior to reordering the blocks of data in each individual macro-block.